


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A ~~data transmission transmitting~~ device of a radio communication system having a radio link control (RLC) layer, comprising:

 a ~~transmission data reassembling segmentation and/or concatenation~~ module that ~~reassembles segments and/or concatenates~~ service data units (SDUs) received from an upper layer ~~into through an access point for forming at least one protocol data units (PDUs) unit~~ (PDU);

a header adding module that adds ~~headers of the RLC layer to the reassembled PDUs~~ at least one header to the segmented and/or concatenated SDUs for forming the at least one PDU;

a ~~transmission data~~ storing module that stores the ~~PDUs~~ at least one PDU to which the headers are added; and

a ciphering module that ciphers the ~~PDUs to which the headers are added~~ at least the segmented and/or concatenated SDUs of the at least one PDU and then transmits the ~~ciphered PDUs to a lower layer~~ result to a lower layer through at least one of a plurality of channels for transmission.

A 2. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 1, wherein the SDUs are transmitted to the transmission data reassembly module through an UM-SAP from the upper layer and the ciphered PDUs are transmitted from the data transmission device to a receiving RLC entity of the radio communication system through AP is a UM-SAP, at least one of the plurality of channels is at least one of DTCH, DCCH, CCCH, SHCCH, and CTCH channels and the result is transmitted from the transmitting device through at least one lower layer to an RLC entity of the radio communication system corresponding to a receiving side.

3. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 1, wherein the ~~transmission data reassembly module includes a segmentation and concatenation module that segments and concatenates the SDUs transmitted from the upper layer~~ at least one of the plurality of channels is a logical channel.

4. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 1, wherein the headers include sequence numbers of the RLC layer the at least one header include a sequence number (SN) representing an order number of the at least one PDU.

5. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 1, further comprising a data retransmission control module that controls retransmission and in which the ~~PDU~~s at least one PDU to which the ~~headers are~~ at least one header is added by the header adding module ~~are~~ is stored for retransmission.

6. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 5, further comprising a multiplexer that provides either a first output signal from the header adding module or a second output signal from the data retransmission control module to the ~~transmission~~-data storing module.

7. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 5, further comprising a header field setting module that sets ~~fields of the headers in the~~ at least one field of the at least one header in the at least one PDU ~~stored in the transmission~~ received from the data storing module and transmits the ~~set header fields~~ at least one PDU to the ciphering module.

8. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 5, wherein the SDUs are ~~transmitted to the transmission data reassembly module, through an AM-SAP, from the upper layer and the ciphered PDUs are transmitted from the data transmission device to a receiving RLC entity of the radio communication system through DTCH, DCCH, CCCH, SHCCH, and CTCH channels~~ the access point is an AM-SAP, the at least one ciphered

PDU is transmitted to a radio link control entity of the communication system corresponding to a receiving side, and at least one of the channels is at least one of DTCH and DCCH.

9. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 5, wherein:

the ciphering module checks a D/C field in the headers of the PDUs at least one header of the at least one PDU before performing the ciphering; and

the ciphering module does not cipher control PDUs ~~but does cipher all other PDUs~~; PDU but data PDU including piggybacked status is ciphered in accordance with a value of the D/C field PDUs, in accordance with values of the D/C fields; and

~~the ciphering module transmits the control PDUs to an RLC control module.~~

10. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 5, wherein the ciphering module ~~replaces a PAD within the PDUs with a number of piggybacked status PDUs~~ checks the at least one PDU and then replaces padding in the at least one PDU by at least one piggybacked status PDU if padding exists in the at least one PDU.

11. (Currently Amended) A ~~data-receiving~~ device of a radio communication system having a radio link control (RLC) layer, comprising:

a deciphering module that decipheres ~~received~~ ciphered protocol data units (PDUs) of the RLC layer, ~~through a lower layer, into deciphered PDUs~~ received from a lower layer of the receiving device through at least one of a plurality of channels;

a ~~received~~ data storing module that stores the deciphered PDUs;

~~an RLC~~ a header removing module that removes headers ~~of the RLC layer~~ from the deciphered PDUs; and

a reassembly module that reassembles the deciphered PDUs outputted from the ~~RLC~~ header removing module into service data units (SDUs) and then transmits the SDUs to an upper layer through an access point.

12. (Currently Amended) The ~~data-receiving device of claim 11, wherein the~~ at least one of the plurality of channels is at least one of ciphered PDUs from a transmitting side are transmitted to the data-receiving device through DTCH, DCCH, CCCH, SHCCH, and CTCH channels and the reassembled SDUs are transmitted to the upper layer through an the ciphered PDUs are received from a transmitting side and the access point is a UM-SAP.

13. (Currently Amended) The ~~data-receiving device of claim 11, wherein the headers~~ include sequence numbers ~~of the RLC layer (SN)~~ representing order numbers of the PDUs.

14. (Currently Amended) The ~~data~~-receiving device of claim 11, further comprising a data retransmission ~~control~~ module that controls retransmission of ciphered PDUs to the data receiving device.

15-17. (Canceled).


18. (Currently Amended) The ~~data~~-receiving device of claim ~~[[15]]~~ 14, wherein the ciphered PDUs are transmitted to the data receiving device through DCCH and DTCH channels and the reassembled SDUs are transmitted to the upper layer through an AM-SAP at least one of the plurality of channels is at least one of DCCH and DTCH, and the access point is an AM-SAP.

19. (Currently Amended) The ~~data~~-receiving device of claim ~~[[15]]~~ 18, wherein the deciphering module includes a deciphering block and a demultiplex/routing block ~~for transmitting that transmits~~ control PDUs of AMD PDUs received from a ~~transmitting side the lower layer~~ to an RLC control module and ~~transmitting other AMD~~ transmits data PDUs to the deciphering block.

20. (Currently Amended) The ~~data~~-receiving device of claim 19, wherein the demultiplex/routing block checks a D/C field within the AMD PDUs to determine whether the AMD PDUs are the control PDUs or the other AMD data PDUs.

21. (Currently Amended) The ~~data-receiving device of claim [[15]] 20~~, wherein the RLC header removing module ~~removes the headers of the RLC layer and~~ extracts piggybacked information from AMD PDUs transmitted from the received data storing module the data PDUs.

22. (Currently Amended) A ~~data transmission-transmitting~~ device of a radio communication system having a radio link control (RLC) layer, comprising:

 a ~~transmission~~ data storing module that stores service data units (SDUs) received from an upper layer through an access point;

a ~~transmission data reassembly module that reassembles the stored SDUs into protocol data units (PDUs) of the RLC layer~~ segmentation and/or concatenation module segmenting and/or concatenating the stored SDUs for forming at least one protocol data unit (PDU);

a header adding module that adds ~~headers of the RLC layer to the reassembled PDUs~~ at least one header to the at least one PDU; and

a ciphering module that ~~ciphers the PDUs to which the headers are added and then transmits the ciphered PDUs to a lower layer~~ at least the segmented and/or concatenated SDUs of the at least one PDU outputted from the header adding module and then transmits the result to a lower layer through at least one of a plurality of channels for transmission.

23. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 22, wherein the SDUs are transmitted to the ~~transmission data storing module~~ through an UM-SAP from the upper layer and the ciphered PDUs are transmitted from the ~~data transmission device~~ to a receiving RLC entity of the radio communication system through access point is an UM-SAP, the result is transmitted to a radio link control entity of the radio communication system corresponding to a receiving side and at least one of the plurality of channels is at least of DTCH, DCCH, CCCH, SHCCH, and CTCH-channels.

24. (Canceled).

25. (Currently Amended) The ~~data transmission-transmitting~~ device of claim 22, wherein the ~~headers include~~ at least one header includes a sequence numbers-number of the ~~RLC layer~~ at least one PDU.

26-31. (Canceled).

32. (Currently Amended) A method for transmitting data in a radio communication system having a radio link control (RLC) layer, comprising:

~~reassembling-segmenting and/or concatenating~~ service data units (SDUs) received from an upper layer into protocol data units (PDUs) through an access point for forming at least one protocol data unit (PDU);

adding ~~headers of the RLC layer to the PDUs~~ at least one header to the segmented and/or concatenated SDUs to form the at least one PDU;

storing the ~~PDUs~~ at least one PDU to which the ~~headers are~~ at least one header is added in a ~~transmission~~ data storing buffer;

ciphering the ~~PDUs to which the headers are added~~ at least the segmented and/or concatenated SDUs of the at least one PDU; and

transmitting the ~~ciphered PDUs~~ result to a lower layer through at least one of a plurality of channels for transmission.

33. (Currently Amended) The method of claim 32, wherein the ~~SDUs are transmitted to a transmission module through an UM-SAP from the upper layer and the ciphered PDUs are transmitted from the transmission module to a receiving RLC entity of the radio communication system through~~ access point is an UM-SAP, the result is transmitted to a radio link control entity of the communication system corresponding to a receiving side and at least one of the plurality of channels is at least one of DTCH, DCCH, CCCH, SHCCH, and CTCH channels.

34. (Canceled).

35. (Currently Amended) The method of claim 32, further comprising storing the ~~PDU to which the headers are~~ at least one PDU to which the at least one header is added as retransmission PDUs and ~~controlling retransmission of the retransmission PDUs~~ managing retransmission of the at least one stored PDU.

36. (Currently Amended) The method of claim 35, further comprising multiplexing the ~~PDU to which the headers are~~ PDU to which the header is added and ~~the a PDU stored for~~ a PDU stored for retransmission ~~PDUs as combined PDUs~~ and transmitting the combined PDUs to the ~~transmission~~ data storing module.

37. (Currently Amended) The method of claim 35, further comprising setting ~~fields~~ of the headers in the PDUs ~~to which the headers are added, before ciphering the PDUs~~ at least one field of the at least one header in the at least one PDU before the ciphering step.

38. (Currently Amended) A method for receiving data in a radio communication system having a radio link control (RLC) layer, comprising:

deciphering ciphered protocol data units (PDUs) of the RLC layer ~~transmitted~~ received from a transmitting side, through a lower layer[[,]] into deciphered PDUs through at least one of a plurality of channels;

storing the deciphered PDUs in a ~~receiving~~ data storing buffer as PDUs;

removing headers ~~of the RLC layer~~ from the PDUs;

reassembling the PDUs ~~of the RLC layer~~, from which the headers are removed, into service data units (SDUs); and

transmitting the reassembled SDUs to an upper layer through an access point.

39. (Currently Amended) The method of claim 38, wherein the ~~ciphered PDUs from the transmitting side are transmitted to a data receiving device through~~ at least one of the plurality of channels is at least one of DTCH, DCCH, CCCH, SHCCH, and CTCH, channels ~~and the reassembled SDUs are transmitted to the upper layer through the ciphered PDUs are~~ sent from a transmitting side, and the access point is an UM-SAP.

40. (Canceled).

41. (Currently Amended) The method of claim 40, further comprising reading the removed headers.

42. (Currently Amended) The method of claim 41, wherein the deciphering of the ciphered PDUs includes transmitting control PDUs of the ciphered PDUs transmitted from the transmitting side to an RLC control module and deciphering ~~AMD PDUs only~~ only data PDUs.

43. (Canceled).

44. (New) The method of claim 40, wherein at least one of the plurality of channels is at least one of DCCH and DTCH, and the access point is an AM-SAP.

45. (New) A device for a communication system comprising:
means for deciphering ciphered protocol data units (PDUs) received from a lower layer through at least one of a plurality of channels;
means for buffering the deciphered PDUs; and
means for converting the deciphered PDUs into service data units (SDUs), which are transmitted to an upper layer through an access point.

46. (New) The device of claim 45, wherein the PDU-to-SDU converting means comprises:

means for removing a header from a buffered PDU; and
means for reassembling the header removed PDU to at least one SDU.

47. (New) The device of claim 45, further comprising:
means for buffering SDUs received from the upper layer through the access point;
means for converting SDUs to PDUs; and
means for ciphering PDUs for transmission to a lower layer through at least one of the plurality of channels.

48. (New) The device of claim 47, wherein the SDU-to-PDU converting means comprises:

means for segmenting and/or concatenating SDUs to form at least one PDU; and

means for adding a header to the segmented and/or concatenated SDUs to form the at least one PDU.

49. (New) The device of claims 45 to 48, wherein the access point is a UM-SAP and at least one of the plurality of channels is at least one of DTCH, DCCH, CCCH, SHCCH, and CTCH.

50. (New) The device of claim 45, wherein the buffering means further includes means for managing retransmission of the PDUs.

51. (New) The device of claim 50, wherein the PDU-to-SDU converting means comprises:

means for removing header and/or extracting piggybacked information from the PDUs; and

means for reassembling the PDUs received from the removing means to SDUs.

52. (New) The device of claim 51, further comprising:

means for converting SDUs from the upper layer via the access point to PDUs;

a buffer for buffering the PDUs transmitted from the SDU-to-PDU converting means; and

means for ciphering the PDUs for transmission to a lower layer through at least one of the plurality of channels.

53. (New) The device of claim 52, wherein the SDU-to-PDU converting means comprises:

means for segmenting and/or concatenating SDUs to form at least one PDU;

means for adding a header to the segmented and/or concatenated SDUs to form the at least one PDU;

means for managing retransmission of the at least one PDU; and

means for multiplexing output of the header means and managing means for output to the buffer.

54. (New) The device of claim 53, wherein the ciphering means comprises:

a field setting block for setting a field in the at least one header of the at least one PDU and/or setting piggybacked information to the at least one PDU; and

a ciphering block for ciphering the segmented and/or concatenated SDUs of the at least one PDU based on the field set in the header.

55. (New) The device of claim 54, further comprising:
means for controlling the ciphering means; and
means for demux/routing status PDUs to the managing mean of the SDU-to-PDU converting means or data PDUs to the deciphering means.

56. (New) The device of claim 54, wherein the ciphering block only ciphers segmented and/or concatenated SDUs of the data PDUs.

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57. (New) The device of claim 57, wherein
the demux/routing means sends control PDUs to the controlling means; and
header removing means sends ACK PDUs to the controlling means and piggybacked information to the managing means.

58. (New) The device of claims 50 to 57, wherein the access point is an AM-SAP and at least one of the plurality of channels is at least one of DCCH and DTCH.

59. (New) The device of claim 47 or 52, wherein the upper layer is an RRC and the lower layer is an MAC.